

REMARKS

Claims 1 to 16 are pending in this application. Reconsideration and reexamination of the application is respectfully requested in view of this amendment and the following remarks.

The Examiner, in the first paragraph of the Office Action, indicates that claim 1-3, 5-11, and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagata (5,974,224). The Examiner indicates as follows.

Regarding claim 1, Nagata discloses an apparatus for decompressing compressed data including a plurality of groups of compressed pictures, comprising

recording means including at least one random access memory (3) for recording said compressed data,

reading means (4) for reading said compressed data from said recording means,

decompressing means (decoding means) (8) for decompressing said compressed data read from said recording means by said reading means,

at least one frame memory (91, 92, 93) for storing said decompressed data produced by said decompressing means,

picture designating means (4, 5, 6) for designating said compressed picture to be decompressed, and

control means for controlling said reading means by specifying said group of compressed pictures to be read from said recording means by said reading means based on said picture designated by said picture designating means and controlling said decompressing means by transmitting data of said picture designated by said picture designating means to said decompressing means.

In response to the Examiner's indication, claim 1 has been amended as set forth above. The amendments are supported by the description on page 8, line 30 to page 11, line 36, FIG. 2 to FIG. 7, page 13, line 9 to page 14, line 11, FIG. 10 to FIG. 12, and page 15, line 19 to page 15, line 35, and FIGS. 15 and 16, accordingly, are within the scope of the application as originally filled. Claims 2 to 5, and 8 have been cancelled. In view of the amendments to claim 1, it is urged that the Examiner's indication is no longer applicable to the present application for the reasons as described hereinlater.

The constituent elements of the apparatus for decompressing compressed data defined in the amended claim 1 are as follows.

1. (Amended) An apparatus for decompressing compressed data including a group of coded pictures having at least one Intra-coded picture, Predictive-coded pictures, and Bidirectionally-coded pictures comprising:

- (a1) recording means for recording said compressed data;
- (b1) reading means for reading said compressed data from said recording means;
- (c1) decompressing means for decompressing said compressed data read by said reading means from said recording means;
- (d1) a frame memory portion for storing decompressed data decompressed by said decompressing means;
- (e1) displaying means for displaying said decompressed data stored in said frame memory portion;
- (f1) picture designating means for designating a coded picture; and
- (g1) control means for controlling said reading means to have said reading means read said coded picture designated by said picture designating means from said recording means and controlling said decompressing means to have said decompressing means decompress said coded picture read by said reading means, and in which
- (h1) said reading means being operative to read said Intra-coded picture, Predictive-coded pictures intervening between said Intra-coded picture and said coded picture designated by said picture designating means, and said coded picture designated by said picture designating means,
- (i1) said decompressing means being operative to assume two operating states including a Predictive-coded picture decompressing operating state, in which said decompressing means is operative to decompress, in sequence, said Intra-coded picture and said Predictive-coded pictures intervening between said Intra-coded picture and said coded picture designated by said picture designating means under the condition that said coded picture designated by said picture designating means is a Predictive-coded picture, and a Bidirectionally-coded picture reading operation state in which said decompressing means is operative to decompress in sequence said Intra-coded picture and said Predictive-coded pictures intervening between said Intra-coded picture and Predictive-coded picture read by said reading means immediately prior to said coded picture designated by said picture designating means, and then decompress said coded picture designated by said picture designating means on the basis of two of said Predictive-coded pictures decompressed immediately prior to said coded picture designated by said picture designating means under the condition that said coded picture designated by said picture designating means is a Bidirectionally-coded picture,
- (j1) said frame memory portion includes a first memory section for storing therein a

picture decompressed by said decompressing means, and a second memory section for storing therein a picture immediately subsequent to said picture stored in said first memory section and decompressed by said decompressing means, and

(k1) said control means is operative to control said displaying means operative to display said decompressed data stored in said frame memory portion asynchronously with the timing of said decompressing means.

From the elements (h1), (i1) and (j1) forming part of the apparatus for decompressing compressed data defined in the amended claim 1, it will be understood that the apparatus for decompressing compressed data defined in the amended claim 1 makes it possible for the coded picture designated by the picture designating means to be decompressed precisely and at a high speed as well as efficiently with two frame memories in comparison with the conventional apparatus for decompressing compressed data.

From the elements (e1) and (k1) forming part of the apparatus for decompressing compressed data defined in the amended claim 1, it will be understood that the apparatus for decompressing compressed data defined in the amended claim 1 makes it possible for the decompressed picture to be displayed precisely and at a high speed as well as reliably with two frame memories in comparison with the conventional apparatus for decompressing compressed data, resulting from the fact that the decompressing means and the displaying means does not conflict with each other.

The following argument will be made about the apparatus for decompressing compressed data defined in the amended claim 1 on the basis of the comparison with the cited reference to Nagata.

The cited reference to Nagata discloses an apparatus for decoding video signals is shown in FIG. 1 as comprising a storage medium (3) for recording a bit stream that is obtained by the encoding of respective frames in a GOP using intra coding of one frame, and predictive coding and bidirectionally predictive coding of a given number of frames, reading means (4) for reading the bit stream from the storage medium (3), decoding means (8) for decoding only given picture types of the bit stream outputted from the storage medium (3), by one of consecutively decoding and decoding according to the results of the picture type determination, and three frame memories (91, 92, 93) for storing at least three reproduced image frames that are outputted from the decoding means and using these frames as a reference image and decoded outputs in the decoding means.

The cited reference to Nagata, however, fails to disclose the previously mentioned elements (e1), (j1), and (k1) viz., (e1) displaying means for displaying

said decompressed data stored in said frame memory portion, (j1) said frame memory portion includes a first memory section for storing therein a picture decompressed by said decompressing means, and a second memory section for storing therein a picture immediately subsequent to said picture stored in said first memory section and decompressed by said decompressing means, and (k1) said control means is operative to control said displaying means operative to display said decompressed data stored in said frame memory portion asynchronously with the timing of said decompressing means. This leads to the fact that the present apparatus defined in the amended claim 1 is entirely different in construction from the apparatus disclosed in the cited reference to Nagata.

The fact that the construction of the apparatus for decompressing compressed data defined in the amended claim 1 is entirely different from that of the apparatus disclosed in the cited reference to Nagata leads to the fact that the above function and advantages attained by the apparatus for decompressing compressed data defined in the amended claim 1 cannot be expected from the apparatus disclosed in the cited reference to Nagata.

For example, the apparatus disclosed in the cited reference to Nagata can read and decode compressed and encoded video signals from a storage medium backwardly with at least three frame memories, but cannot decompress the coded picture designated by the picture designating means precisely and at a high speed as well as efficiently with two frame memories in comparison with the conventional apparatus for decompressing compressed data. This means that at least three frame memories are required for the apparatus disclosed in the cited reference to Nagata to decode B picture. As stated in the reference to Nagata, column 8, lines 34 to 57, in the case that, for example, the B picture 30B is to be reproduced, the reproduced image of the frame 28P and the frame 31P stored in the frame memories 92 and 93 as a reference image is required for decoding, and the reproduced image of the B picture 30B is required to be stored in the frame memory 91, resulting from the fact that the reference to Nagata fails to disclose the previously mentioned element (j1), viz., (j1) said frame memory portion includes a first memory section for storing therein a picture decompressed by said decompressing means, and a second memory section for storing therein a picture immediately subsequent to said picture stored in said first memory section and decompressed by said decompressing means.

Further, the apparatus disclosed in the cited reference to Nagata cannot display the decompressed picture precisely and at a high speed as well as reliably with two frame memories in comparison with the conventional apparatus for decompressing

compressed data, resulting from the fact that the decompressing means and the displaying means does not conflict with each other, resulting from the fact that the apparatus disclosed in the cited reference to Nagata fails to disclose the previously mentioned elements (e1), viz., (e1) displaying means for displaying said decompressed data stored in said frame memory portion. This means that displaying means may be connected with the decoding means (8), and display the picture based on the reproduced signal (81) outputted from the decoding means (8), but none of the frame memories (91, 92, 93) forming part of the apparatus disclosed in the cited reference to Nagata can be connected with displaying means. This leads to the fact that the apparatus disclosed in the cited reference to Nagata cannot display the decompressed picture precisely and at a high speed as well as reliably with two frame memories. Furthermore, the apparatus disclosed in the cited reference to Nagata cannot display the decompressed picture precisely and at a high speed as well as reliably with two frame memories in comparison with the conventional apparatus for decompressing compressed data, and even if the displaying means is connected with the apparatus disclosed in the cited reference to Nagata, the displaying means simply connected with the apparatus disclosed in the cited reference to Nagata does conflict with the decoding means (8), resulting from the fact that the apparatus disclosed in the cited reference to Nagata fails to disclose the previously mentioned elements (j1) and (k1), viz., (j1) said frame memory portion includes a first memory section for storing therein a picture decompressed by said decompressing means, and a second memory section for storing therein a picture immediately subsequent to said picture stored in said first memory section and decompressed by said decompressing means, and (k1) said control means is operative to control said displaying means operative to display said decompressed data stored in said frame memory portion asynchronously with the timing of said decompressing means.

From the foregoing description, it is believed that the amended claim 1 is patentably distinguishable over the cited reference to Nagata.

Claim 6 has been amended as set forth above, without adding any additional subject matter. The amendments to claim 6 are supported by the description on page 14, line 25 to page 15, line 35 in the specification, and FIG. 13 and FIG. 14.

Claim 7 has been amended as set forth above, without adding any additional subject matter. The amendments to claim 7 are supported by the description on page 14, line 25 to page 15, line 35 in the specification, and FIG. 13 and FIG. 14.

The claims 6 and 7 are dependent upon the amended claim 1, which is believed to be patentably distinguishable over the cited reference to Nagata as will be understood

from the foregoing reasons. It is therefore believed that the currently amended claims 6 and 7 are patentably distinguishable over the cited reference to Nagata on the basis of the same reasons above.


The originally filed claims 9, 14, and 15 have been amended as set forth above. The currently amended claims 9, 14 and 15 are method claims respectively corresponding to the currently amended claims 1, 6 and 7. The currently amended claims 9, 14, and 15 are patentably distinguishable over the cited reference to Nagata for the same reasons that the currently amended claims 1, 6 and 7 are patentably distinguishable over the cited reference to Nagata on the basis of the same reasons above.

For the above reasons it is believed that the application and claims as amended is now in proper condition for allowance, and reconsideration and early allowance of the amended application is respectfully solicited.

If any fees are required by this communication, please charge such fees to our Deposit Account No. 16-0820, Order No. 33455.

Respectfully submitted,

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